

## PSYCHE.

### NOTES ON NEW ENGLAND ACRIDIIDAE, IV.—ACRIDIINAE.—II.

BY ALBERT P. MORSE, WELLESLEY, MASS.

#### KEY.

- A. Without trace of tegmina or wings; dark olive-green above, length one inch or a little less; on higher mountains. . . . . *PODISMA*.  
B. Cerci of male relatively stout, the middle distinctly more than half as broad as the base. . . . . Sp. 35, *P. glacialis*.  
[BB. Cerci of male slender, the middle less than half as broad as the base. . . . . *P. variegata*. \* ]
- AA. Tegmina present.  
C. Size large, length of tegmina 27 mm. or more. . . . . *SCHISTOCERCA*.  
D. Very large, tegmina 42 (♂) to 55 (♀) mm. long. Body and tegmina brown, conspicuously varied with ashy and yellow stripes and fuscous spots, with a pale mid-dorsal line on head, pronotum, and closed tegmina. . . . . Sp. 33, *S. americana*.  
DD. Smaller, length of tegmina 27 (♂) to 40 (♀) mm.  
E. With a distinct, pale yellow mid-dorsal stripe on head, pronotum and closed tegmina. General color varying from rusty brown through yellowish to olive-green. Vertex more prominent (Fig. 32). . . . . Sp. 32, *S. alutacea*.  
EE. Without such stripe, only the dorsal edge of closed tegmina sometimes yellowish. General color rusty brown. Vertex less prominent (Fig. 31). . . . . Sp. 31, *S. rubiginosa*.
- CC. Size medium or small, tegmina not over 23 mm. long.  
F. Pronotum deeper than broad. Hind tibiae greenish blue. General color when fresh (sometimes becoming very dark when dry) a bright pale green, with a conspicuous narrow purplish mid-dorsal line on pronotum, usually on head also, and with the dorsal part of closed tegmina usually largely purple. Antennae pink, short, of female

\* Not known from New England, but found near Ithaca, N. Y. See Scudder, — Rev. Melanopli, p. 101, pl. vii, fig. 4.

less than head plus pronotum, of male a little longer proportionally. Small, 16 to 24 mm. Cerci of male straight, tapering evenly to a sharp, conical point. . . . Sp. 34, *Hesperotettix brevipennis*.

FF. Not as above: coloration usually dull, chiefly brownish or olivaceous, the tegmina invariably so.

G. Hind tibiae bright greenish blue. Hind femora not transversely banded, slender, of male about 12 mm., of female about 16 mm. long. Tegmina fully developed, at least double the length of the pronotum, not spotted or streaked. Body slender, eyes noticeably prominent. Antennae very long, of male twice, of female distinctly more than once, as long as head plus pronotum. Mid-carina of pronotum distinct, equally developed throughout. Prosternal spine long, tapering, sharply pointed. Cerci of male nearly symmetrical, slender, the tips a little expanded, and incurved, caliper-like. Sp. 46, *Paroxya floridana*.

GG. Not as above. . . . MELANOPLUS.

#### KEY TO SPECIES OF MELANOPLUS — Males.

1. Tegmina no longer or scarcely longer than pronotum.\*
  2. Cerci slender, clasp-like, four times as long as their middle breadth (Fig. 38). Furcula well-developed but short (Fig. 38c). Mid-carina of pronotum indistinct on prozona . . . . . *M. mancus*.
  - 2'. Cerci broad, sub-triangular, less than three times as long as the middle breadth (Fig. 37). Furcula usually very short. Mid-carina of pronotum distinct throughout . . . . . *M. scudderi*.
- 1'. Tegmina much longer than pronotum.
  3. Subgenital plate with apical margin conspicuously notched (Fig. 36b). Tegmina equalling or passing the hind femora. Cerci subtrapezoidal, about twice as long as broad (Fig. 36). . . . . *M. atlantis*.
  - 3'. Subgenital plate not conspicuously notched.
    4. Cerci distinctly forked, the lower branch narrower (Fig. 43). *M. collinus*.
    - 4' (4''). Cerci of irregular shape or very unequal width.
      5. Cerci with apical two-fifths suddenly narrowed on ventral side to nearly one-half the width of basal three-fifths (Fig. 42). *M. minor*.
      - 5'. Cerci broadly expanded apically.

\* *Mel. islandicus* Blatch. (Psyche, April 1898, p. 196 = *M. abortivus* E. M. Walker, Can. Ent., April 1898, p. 90), found in the vicinity of Toronto, Canada, resembles *mancus*, especially the female. The male may be readily separated from *mancus* by the cerci which are shorter, but little longer than their width at base, with sides tapering evenly to a flattened, very slightly expanded tip. This species may possibly occur in the St. Lawrence basin within our boundaries.

6. Cerci roughly sock-shaped by an expansion on the dorsal margin of apex (Fig. 44). Hind femora robust, not transversely banded with dusky. Interspace between mesosternal lobes nearly twice as long as broad. A large, robust species, with unspotted tegmina. . . . . *M. femoratus*.
- 6'. Cerci terminating in a transverse, oval, tumid lobe (Fig. 45). Hind femora slender, transversely banded. Interspace subquadrate. Tegmina more or less distinctly spotted. A species of medium size. . . . . *M. punctulatus*.
- 4". Cerci simple in outline, nearly straight.
7. Furcula very short.
8. Cerci nearly straight, three or four times as long as their middle breadth and sub-equal in width throughout (Fig. 39).  
*M. fasciatus*.
- 8'. Cerci less than three times as long as their middle breadth, tapering, slightly curved dorsad (Fig. 37). . . . . *M. scudleri*.
- 7'. Furcula long, much longer than last dorsal segment, from which it arises (Fig. 40 c).
9. Cerci tapering, the distal half less than half as broad as the extreme base (Fig. 40) . . . . . *M. femur-rubrum*.
- 9'. Cerci with the distal half distinctly more than half as broad as the extreme base (Fig. 41). . . . . *M. extremus*.

## KEY TO SPECIES OF MELANOPLUS.—Females.\*

1. Tegmina no longer or scarcely longer than pronotum (See note on p. 256).
2. Interspace between mesosternal lobes usually distinctly transverse. (Fig. 39a). Mid-carina of pronotum usually obsolete or rudimentary on pronotum. Lateral lobes of pronotum noticeably longitudinal, the ventral half very pale in color, contrasting strongly with the dorsal half (Fig. 38a). Tegmina shorter than pronotum, sub-oval (Fig. 38b). A conspicuous oblique pale streak on the metepisternum. . . . . *M. mancus*.
- 2'. Interspace quadrate. Mid-carina of pronotum conspicuous, about equally

\* In using this table it should be distinctly understood that implicit reliance cannot be placed on any single character, so great is the similarity between species and so wide the range of individual variation. In many cases all available characters need to be considered in order to determine with certainty the species to which a given specimen belongs. In addition to the points stated in the table, the measurements, locality, and date may be found helpful. From 90 to 95 % of the specimens examined will be readily determined by this table, most of the remainder with a little trouble, and about 2 or 3 % not until the student has become thoroughly familiar with all of the species here considered. *Femoratus* will be at once recognized by its size; *punctulatus* by the form of the ovipositor; *minor*, less readily, by the same means; *mancus* and *scudleri* by the tegmina; but the other five will be more difficult.

- developed throughout. Lateral lobes nearly as deep as long, the dorsal and ventral halves not strongly contrasted in color. Tegmina sublanceolate, tapering toward apex, about twice as long as wide (Fig. 37b). Metepisternum lacking distinct pale streak. . . . . *M. scudleri*.
- 1'. Tegmina much longer than pronotum.
3. Large, robust; hind femora 16 mm. or over (usually 18-19). Dorsal area of closed tegmina separated from lateral area by a pale streak which sometimes suffuses entire dorsal area. . . . . *M. femoratus*.
- 3'. Smaller; hind femora not over 14 mm.
4. Lower valves of ovipositor about straight, the lateral tooth nearly or quite obsolete (Fig. 45a). Interspace between mesosternal lobes transverse. Tegmina maculate with dusky. Hind femora conspicuously banded on outside and cherry-red within at base. *M. punctulatus*.
- 4'. Lower valves of ovipositor with the apex more or less distinctly decurved, and with a distinct lateral tooth midway of the lower outer margin (Figs. 36a, 40a, etc.).
5. Interspace between mesosternal lobes longitudinal or quadrate. Species with tegmina usually passing the hind femora, the body relatively slender, the pronotum when seen from side often depressed at the principal sulcus, with smaller, uninflated prozona (Fig. 36c).
6. Tegmina more or less flecked with dusky and pale spots along the middle. Hind femora usually showing more or less distinct fuscous bands, at least on the dorsal side. Upper valves of ovipositor angulated at base of scoop (Figs. 42a, 40a, etc.).
7. Prosternal spine nearly cylindrical, the tip bluntly rounded, often bulbous (Fig. 40d). Cerci once and a half or twice as long as wide, sharply pointed, somewhat acuminate, the sides slightly concave (Fig. 40a). Ovipositor seen from side with the basal part of scoop longer, the angle between scoop and stem more obtuse. Hind tibiae red. Hind femora largely or wholly lacking transverse dusky bands except on dorsal part of inner face. Mid-carina of pronotum frequently distinct on prozona. . . . . *M. femur-rubrum*.
- 7'. Prosternal spine tapering, the tip pointed (Fig. 36d). Cerci shorter, only about one and one-third times as long as wide, rather dull at tip, the sides straight or

- often convex (Fig. 36a). Upper valves of ovipositor with scoop shorter, the angle at junction with stem more pronounced (Fig. 36a). Hind tibiae either glaucous or red. Hind femora usually with conspicuous dusky oblique bands. Mid-carina of pronotum seldom distinct on prozona. . . . *M. atlantis*.
- 6'. Tegmina and hind femora immaculate or showing only faint traces of spots or bands. No angulation at junction of scoop and stem of ovipositor (Fig. 41a). Prozona fuller proportionally, the dorsal line of pronotum horizontal. Interspace usually sub-quadrate or transverse. *M. extremus*.
- 5'. Interspace between mesosternal lobes sub-quadrate or distinctly transverse. Species with relatively stout body, swollen prozona (giving a thick-necked appearance, Fig. 43b), and tegmina not passing hind femora.
8. Tegmina about reaching end of hind femora. Interspace but little transverse.
9. Scoop of ovipositor very short, deeply concave, with a single or no denticulation at base of outer edge; lower valves with the tips correspondingly short and decurved (Fig. 42a). Hind tibiae usually glaucous but often red. Tegmina flecked with dusky and pale spots, hind femora obliquely banded. Lateral carinae of pronotum usually bordered below on the prozona by a broad fuscous stripe which is crossed obliquely by a distinct, narrow, pale line. Prozona less inflated than in *collinus* and body less robust. . . . *M. minor*.
- 9'. Scoop rather long, the outer edge of basal half crenulato-denticulate, the tips of both pairs of valves long and evenly tapering (Fig. 43a). Hind tibiae coral red. Fuscous stripes on prozona indistinct, often lacking. Tegmina maculate and hind femora obliquely banded. A robust species with noticeably tumid prozona and thick-necked aspect (Fig. 43b). . . . *M. collinus*.
- 8'. Tegmina reaching but one-half or two-thirds the length of the hind femora. Interspace rather strongly transverse.
10. Hind femora with conspicuous oblique dusky bands, at least above. Hind tibiae red. Tegmina usually dark brown, flecked with dusky and pale spots. A

robust species with interspace strongly transverse (Fig. 39a). Prosternal spine variable, rather short. Ovipositor similar to that of *extremus* or a little stouter.

*M. fasciatus.*

- 10'. Hind femora not obliquely banded, rarely with traces of dusky on dorsal part of inner face. Hind tibiae variable. Tegmina brownish olive, immaculate or very nearly so. General color varying from greenish to brownish olive, with black markings. Interspace varying from sub-quadrate to rather strongly transverse. Tegmina variable in length, sometimes passing hind femora. Prosternal spine variable, most resembling that of *femur-rubrum*. Scoop of ovipositor in side view without angulation at junction with stem (Fig. 41a). . . . . *M. extremus.*

## ON SOME NEW AND ANOMALOUS TETTIGONINAE.

BY C. F. BAKER, AUBURN, ALA.

The following new species belong to genera not before recorded from America. They occupy as anomalous a position among the Tettigoninae, as does *Tinobregmus* among the Jassinae. Like *Tinobregmus*, they present a remarkable difference in the two sexes, and are heavily robust in form. All four species belong to the far west, the eastern limit being Colorado.

The ocelli are not as near the front margin of the vertex as in some other unquestioned Tettigonids. Compared with *Acocephalus*, the eyes are distant from the front edge of vertex, and occupy a position never approached by the ocelli in *Acocephalus*. Besides, other details of structure show a closer

relationship with the Tettigonine series, where I have placed them. The single species of *Bathysmatophorus*, *reuteri*, was described from the Scandinavian countries. *Errhomenus*, with its single species, *brachypterus*, is quite widely distributed in Central Europe.

*Bathysmatophorus uhleri* n. sp. Length of ♀ 9.5 mm. Color pale brownish, irrorate with darker, minutely so on head and pronotum, coarsely on dorsum and fore femora.

Vertex about a half longer on middle than next eyes, rather strongly depressed; ocelli about midway of its length, and somewhat nearer the median line than to eyes. The front subrectangular in general outline, a little broader above, somewhat timidly extended, and crossed by numerous faint dark arcs. Clypeus regularly oblong, nearly two-